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THE TIRE INDUSTRY IN THE SINO-SOVIET BLOC

I. Pneumatic Tire Casings

A. Sino-Soviet Bloc Supply Position

The USSR and the other industrial countries in the Sino-Soviet Bloc produce all types of pneumatic tires, ranging from scooter and motorcycle sizes up to large tires needed for aircraft, heavy trucks, and earthmovers. In 1957 the total Sino-Soviet Bloc production, including aircraft and motorcycle tires, was more than 20 million units, an increase of 94 percent over 1950 production. In spite of this increase, there still exists a deficit of tires within the Bloc as a whole. 1/ In order to overcome this deficiency, Bloc plans call for a 50-percent increase in production in 1960 above that in 1957. Production of motor vehicles in recent years has been increasing at an average rate of about 6 percent, and, apart from China, there is no indication of efforts to boost that rate of growth.

1/ Table 1 attached shows the breakdown of production by countries as well as their calculated requirements based on the estimated motor park and production of motor vehicles.

Outside the USSR, tire production appears more than adequate to meet domestic requirements; however, a serious tire shortage appears to exist within the USSR. This condition is due primarily to the low quality of the tires produced. It is estimated that the average Soviet motor vehicle travels 28,000 kilometers annually. Soviet tires have an average useful life of about 30,000 kilometers. Thus, the entire motor park must be re-equipped with new tires every year. Both Poland and the USSR have announced the objective of increasing the average tire mileage from 30,000 kilometers to 40,000 kilometers by 1960. The Soviets have estimated that an increase of 10 percent in tire life would save 50 million rubles a year for every million tires in use, and Mr. Khrushchev, in his recent report to the Party Central Committee on the expansion of the chemical industry said, "Synthetic fibers are also extremely important in industry. Thus, the use of capron cord instead of cotton or rayon cord in the manufacture of tires reduces the expenditure of rubber by 15 percent and at the same time increases the life of the tires by 30 to 40 percent." It is estimated that at least 80 percent of the tires made in the USSR

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are in the larger sizes suitable for trucks. Tire production in the Satellites is believed to be approximately two-thirds for trucks and one-third for passenger cars.

No statistics are available on the use pattern of tires within the Bloc. An approximate estimate assigns 55 percent to trucks, 25 percent to direct military use, and the balance of 20 percent to busses, passenger cars, and other civilian uses. No figures are published on the production of tires by sizes or types, and even if these were available, the military and non-military consumption could be only roughly estimated. Obviously aircraft, passenger cars, motorcycles, and trucks are used by both the military and civilians. Earthmovers and similar types of heavy equipment in many cases take the same sizes of tires as some field guns. In short, most sizes of tires have both military and civilian applications. Tractors, motorcycles, and aircraft probably require less than 10 percent of the total tires [redacted] consumed in the Bloc. This estimate is based on the number of vehicles of these types produced

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and in use. These categories are not included in the statistics given in Table 1 -- hence, the deficit shown in that table can be considered to be a minimum figure.

B. Trade

Trade in motor vehicle tires between the Sino-Soviet Bloc and the Free World is relatively insignificant. Imports by the Bloc in 1956 were valued at about $5 million, and exports were equally modest. Czechoslovakia has a substantial number of tires available for export and during the past few years has attempted to develop a market in Turkey and South America. However, the quality has been so inferior that buyers have demanded refunds. Soviet tires on equipment shipped to Afghanistan were said to fail after 500 to 2,000 miles of service. Communist China shipped some 30,000 tires to Ceylon in 1957 as partial payment for goods received. Figures on shipments by individual countries are too fragmentary to establish a pattern. Bloc wheeled equipment sent to foreign countries is supplied with Bloc-made tires, but in general it appears that their reputation for inferior quality has made potential customers cautious.

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C. Quality

Apart from the obsolete tire-making machinery and equipment 2/, the inferior quality of Bloc tires is attributable largely to the inferior components used in production.

1. Rubber - Generally speaking, the Bloc has sufficient supplies of rubber, both synthetic and natural, to build tires of satisfactory quality. The kinds of rubber used varies in different countries. For instance, China uses natural rubber exclusively, and East Germany uses only 20 percent or even less of natural rubber in making tires.

2. Tire Cord probably is the principal factor in tire life. In the USSR it has been estimated that one-half of all tire failures are due to mechanical deficiencies such as blow-outs, tread separation, etc. About two-thirds of Soviet tires are made with cotton cord, the remainder predominently with rayon cord. The limited amounts of nylon cord available are used for aircraft tires. China's tires are all made with cotton cord, While East German and Czechoslovak tires are principally made with rayon cord. Cotton cord rates the poorest from the point of view of resistance

2/ For detailed comments on tire-making machinery in the Sino-Soviet Bloc, see Section II below, page __.

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to heat and overloading of tires. Rayon is better than cotton and also has a higher tensile strength, whereas nylon is the best material for tire cord which has been found to date.

3. Carbon Black also is an important factor in the life of tires. This is particularly true of tires containing synthetic rubber. The Sino-Soviet Bloc has adequate supplies of carbon black. Its quality, however, cannot be compared with the new types of "high abrasion" blacks which have been developed in the US since World War II. The latter will add from 25 to 40 percent more mileage to the life of a tire. The Soviets have made, and are continuing to make, efforts to acquire the technology of "know-how" for making these types of black, so far without success. The US companies which have developed their own processes for making high-abrasion blacks do not wish to part with their "trade secrets."

4. Beadwire is important, as it serves to hold the tires to the wheel-rims. The Communist countries follow US practice, except their wire is plated with zinc instead of copper or bronze. Bloc supplies of high-tensile wire are ample for their tire needs.

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5. Rubber Chemicals - Chemicals needed for compounding rubber appear to be in adequate supply for their requirements.

D. Plans for Expansion

All of the countries in the Bloc have planned expansion of their tire output by 1960. The USSR, where the most severe shortage exists, plans an increase of about 60 percent in the 3 years, and a further increase of 35 percent by 1965 above 1960 production. In order to attain these goals, Khrushchev has indicated that it will be necessary to import modern equipment and technology from the West. The first of these modern plants is being built by the UK and will have a capacity of 2 million tires per year, 80 percent of which will be large sizes for trucks and military vehicles. The Russians have indicated that they expect to build five such plants, although it is probable that they hope to obtain much of the necessary machinery from outside the Bloc. In the 2-year trade agreement between the USSR and France the latter agreed to furnish 50 tire-molding presses to the USSR in 1957 and 50 more in 1958. These presses could add a half-million tires to Soviet production capacity.